REMARKS

The Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-21 and 27-31 are pending. Claims 22-25 were previously cancelled, and claims 26-31 were previously added by the Preliminary Amendment filed concurrently with the present application on June 1, 2006. Claim 1 is amended merely to place it in a form more typical of U.S. practice.

Claims 1 and 27 are independent.

It appears that in the Office Action, the Examiner considered claims 22-25 that were cancelled, and did not consider claims 26-31 that were added by the Preliminary Amendment dated June 1, 2006.

It is respectfully requested to reconsider the rejections in view of the amendments and remarks set forth herein.

Examiner Interview

If, during further examination of the present application, a discussion with the Applicants' Representative would advance the prosecution of the present application, the Examiner is encouraged to contact Carl T. Thomsen, Registration No. 50,786, at 1-703-208-4030 (direct line) at his convenience.

JMS/CTT/rgf

Drawings

It is gratefully appreciated that the Examiner has accepted the drawings.

Claim for Priority

The Examiner has acknowledged the Applicants' claim for Foreign Priority based on Australian Patent Application No. 2003-906722. Clarification is requested in the next official communication.

Information Disclosure Citation

The Applicants thank the Examiner for considering the reference supplied with the Information Disclosure Statement filed June 1, 2006, and for providing the Applicants with an initialed copy of the PTO form filed therewith.

Objection to the Specification

In response to the objection to the specification, the Applicants have attached a revised Abstract of the Disclosure on a separate sheet at the end of this paper.

Rejections Under 35 U.S.C. § 102(b) and § 103(a)

Claims 1, 2, 5, 10, 12, 13, 16-20, 22, 24, and 25 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Daido Steel Co. Ltd (JP 58-218339);

claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Daido Steel Co. Ltd (Japanese Patent 58-218339);

claims 6-8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Daido Steel Co. Ltd (Japanese Patent 58-218339), in view of Obama et al. (U.S. Patent No. 6,044,684);

claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Daido Steel Co. Ltd (JP 58-218339), in view of Ross et al. (U.S. Patent No. 3,802,248); and claims 11, 14, 15, 21, and 23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Daido Steel Co. Ltd (JP 58-218339). in view of Prenn (U.S. Patent No. 4,838,062).

These rejections are respectfully traversed.

As pointed out above, the Examiner does not appear to have examined the claims as published in U.S. Patent Publication 2007/0079643 A1 (the published Specification of the above referenced application). Instead, the Examiner appears to have incorrectly examined the claims as published in the International Publication WO 2005/053875 A1. This is indicated by the fact that the Examiner has rejected claims 22 to 25, which were deleted during the International Phase and are shown as "cancelled" in U.S. Patent Publication No. 2007/0079643 A1, and the Examiner has not examined claims 26 to 31, which were added upon entry into the National Phase. However, claims 1 to 21 are the same in both documents.

In addition, please note that there is a typographical error in the published application U.S. Patent Publication No. 2007/0079643 A1. The word "tooted" in claim 27 should be "toothed". The correct version of claim 27 was submitted by the Applicants in the Preliminary Amendment filed on June 1, 2006. The typographical error appears to have occurred at the USPTO during the process of printing the published application U.S. Patent Publication No. 2007/0079643 A1.

Arguments Regarding the Patentability of Independent Claim 1 as Originally Filed

The Applicants believe that Daido Steel Co Ltd (JP 58-218339) does not disclose a single die apparatus having the combination of all of the features of independent claim 1. Instead, the Figures of Daido Steel Co Ltd disclose several different arrangements of die apparatus. Figures 3, 4, and 5 disclose a first type of die apparatus, Figures 6 and 7 disclose a second type of die apparatus, and Figures 8, 9, 10, 11 and 12 disclose a third type of die apparatus. This interpretation is supported by the different die apparatuses having different reference numerals. Some of the disadvantages of the die apparatus disclosed in Daido Steel Co Ltd are discussed at paragraph [0008] of the present specification (U.S. Publication No. 2007/00796643).

The Examiner has asserted that Daido Steel Co Ltd anticipates independent claim 1 by picking individual features from each of these three types of die apparatus, rather than matching a single disclosed die apparatus to independent claim 1. Even then, there are features of independent claim 1 that are not disclosed in any of the die apparatuses of Daido Steel Co Ltd, such as the feature "thereby partially forging" discussed below.

Neither the first type of die apparatus shown in Figures 3, 4 and 5 nor the second type of die apparatus shown in Figures 6 and 7 anticipates independent claim 1, because neither of these die apparatuses includes the independent claim 1 feature of "at least one punch member". Both these die apparatuses have only two members (indicated by reference numerals 20, 24 and 30, 40 respectively), whereas the die apparatus of independent claim 1 has at least three members (the "first and second die members" and the "punch member").

Furthermore, the first type of die apparatus shown in Figures 3, 4, and 5 does not anticipate independent claim 1 because the die apparatus shown in these Figures generates flash.

In other words, the die apparatus shown in these Figures is not capable of "performing a flashless forging operation". The flash is indicated by reference numerals 26 in Figures 4 and 5, and Figure 5 shows the flash being removed by shearing after forging.

Also, the second type of die apparatus shown in Figures 6 and 7 does not have the independent claim 1 feature of being "movable towards each other to a closed position **thereby partially forging** said toothed portion". In contrast, the die members shown in Figures 6 and 7 are movable towards each other to a closed position thereby **fully** forging a toothed portion. In other words, unlike the die apparatus of independent claim 1, once the die members 20 and 24 of the die apparatus shown in Figures 6 and 7 reach their closed position as shown in Figure 7 forging is complete.

The third type of die apparatus, shown in Figures 8, 9, 10, 11 and 12, also does not anticipate independent claim 1 for the following reasons. As the Examiner has identified, this die apparatus has "first and second die members" (indicated by reference numerals 58 and 50 respectively) and "at least one punch member" (indicated by reference numeral 56). However, this die apparatus does not have the independent claim 1 feature of "at least a portion of the forming surface of said first die member being shaped substantially as the obverse of the teeth of said rack". Instead, it is the punch member (56) of this die apparatus that has a forming surface shaped as the obverse of the teeth of a rack, as indicated by reference numeral 54 in Figures 8 and 9.

Furthermore, the die apparatus shown in Figures 8, 9, 10, 11 and 12 does not have the independent claim 1 feature of being "movable towards each other to a closed position **thereby partially forging** said toothed portion". Figure 9 shows this die apparatus after the first (58) and

second (50) die members have moved to a closed position, and as can be seen in Figure 9, no forging of the blank (38) has occurred as the first (58) and second (50) die members moved to this closed position. In other words, there is no deformation of the blank (38) between the die apparatus being open (as shown in Figure 8) and the die apparatus being closed (as shown in Figure 9).

At least for the reasons explained above, the Applicants respectfully submit that the combination of elements as set forth in independent claim 1 is not disclosed or made obvious by the prior art of record, including Daido Steel Co. Ltd (JP 58-218339).

Therefore, independent claim 1 is in condition for allowance.

Dependent Claims

All dependent claims are in condition for allowance due to their dependency from allowable independent claims, or due to the additional novel features set forth therein.

Arguments in support of the patentability of selected dependent claims follows:

Dependent Claim 6

The Examiner has asserted that claims 6 - 8 are unpatentable over Daido Steel Co Ltd in view of Ohama et al. (U.S. Patent No. 6,044,684). However, the Applicants disagree that Ohama et al. disclose a forging apparatus having the claim 6 feature of "first and second punch members disposed on opposite sides of said cavity, **between** said first and second die members".

The Examiner appears to have correctly identified items 40 and 36 of Figure 1 of Ohama et al. as being punch members disposed on opposite sides of a forging cavity. The Examiner has also identified items 14 (an "upper die") and 12 (a "lower die") of Ohama et al. as corresponding to the first and second die members respectively of Claim 6. However, the punch members 40

and 36 are **not between** these die members 14 and 12. The embodiment of the present invention shown in Figs. 6a to 6d and described at paragraph [0041] of the present specification illustrate what is meant by the punch members being between the first and second die members. As can be clearly seen in Figs. 6a to 6d, the punch members 58 are situated between the first die member 54 and the second die member 56. In contrast, the punch members 40 and 36 of Ohama et al. each slide in a bore within die members 14 and 12 respectively.

Dependent Claim 7

The Applicants disagree with the Examiner that Ohama et al. disclose a forging apparatus having the claim 7 feature of "said punch member is moveable by means of a mechanism operated by the motion of said die apparatus closing".

As discussed with regards to claim 6, items 40 and 36 are the punch members of the die apparatus disclosed in Ohama et al. These punch members 40 and 36 are movable relative to the upper die 14 and the lower die 12 respectively. However, there is no disclosure of these punch members being moved by "a mechanism operated by the motion of said die apparatus closing". Ohama et al. states at column 5, lines 4 to 6, and at column 5, lines 18 to 21, that punch members 40 and 36 are each displaced by an "unillistrated driving unit", with no further detail being given.

Furthermore, the die apparatus disclosed in Ohama et al. does not disclose any mechanism at all that is operated by the motion of the die apparatus closing (whether the mechanism is moving the punch members or any other member of the die apparatus). The "segmented dies" 26 (identified by the Examiner as "wedge members") of the die apparatus disclosed in Ohama et al. remain stationary as the die apparatus closes, as shown in Figures 1, 5 and 6, so they cannot be considered to be operated by the motion of the die closing. These

"segmented dies" 26 are only moved after forging is complete to allow the forged component 50 to be ejected from the die apparatus. The "segmented dies" 26 are moved by "push pins" 34 connected to an "unillistrated driving unit", as stated at column 4, lines 62 to 63 of Ohama et al.

To clarify what is meant by "said punch member is moveable by means of a mechanism operated by the motion of said die apparatus closing", the embodiment of the present invention shown in Figs. 8, 9 and 10 of the present specification has an example of this feature. In embodiment, the "mechanism" comprises the wedge members 89 and, as described at paragraph [0049], the closing of the die apparatus pushes the wedge members 89, which in turn moves the punch members 58.

As a further note, the "segmented dies" 26 cannot be construed as "punch members" because they remain stationary throughout the closing of the die apparatus.

Dependent Claim 8

The Applicants disagree with the Examiner that Ohama et al. disclose a forging apparatus having the claim 8 feature of "said mechanism comprises at least one wedge member adapted to urge said punch member into said cavity".

The Examiner has identified the "segmented dies" 26 of Ohama et al. as corresponding to the "wedge members" of claim 8. However, while these "segmented dies" 26 do have a wedge shape, they do not "urge said punch member into said cavity". The punch members 36 and 40 of the die apparatus disclosed in Ohama et al. move entirely independently of the "segmented dies" 26 and there is no disclosure of the punch members 36 and 40 being in any way connected to the "segmented dies" 26, as would be necessary for the "segmented dies" 26 to "urge" the punch members 36 and 40.

Dependent Claim 9

The Applicants disagree that Ross et al (U.S. Patent No. 3,802,248) discloses the claim 9 feature "pressurized by means of said die apparatus closing". In contrast, the forging press disclosed in Ross et al is actuated in a conventional manner by a hydraulic ram 14 that must be pressurized from an external source. This is a conventional means of opening and closing a hydraulically operated press.

The embodiment of the present invention shown in Figs. 8, 9 and 10 of the present specification has an example of a hydraulic cylinder pressurized by means of the die apparatus 81 closing. The die apparatus itself must be closed by external means not shown, such as by placing the die apparatus into a forging press. As described at paragraph [0048] of the present specification, pressure is generated in the cylinder 86 by controlling the flow of hydraulic fluid 91 from the cylinder 86 as the piston 85 is moved in the cylinder 86 by the action of the die apparatus 81 being closed. The hydraulic ram 14 of the forging press disclosed in Ross et al is not pressurized by closing the press using some other means whilst controlling the flow of fluid from its hydraulic ram.

Dependent Claim 19

The Applicants disagree that Figure 2 of Daido Steel Co Ltd discloses the claim 19 features of "wherein said blank has a first cylindrical portion and a second cylindrical portion smaller in diameter than said first cylindrical portion, said second cylindrical portion being forged to form the toothed portion of said steering rack, the shaft of said steering rack comprising said first cylindrical portion".

Firstly, Figure 2 of Daido Steel Co Ltd is of a finished steering rack, not a blank. As used in the present specification, the word "blank" means something that is forged in a die apparatus to form a steering rack. The "blanks" of Daido Steel Co Ltd are items 17 and 38 shown in Figures 3, 6, 8 and 11, and there is no disclosure of these blanks having portions of different diameter.

Secondly, the Examiner has attempted to show that the steering rack of Figure 2 of Daido Steel Co Ltd has "a first cylindrical portion (1) and a second cylindrical portion (2) smaller in diameter than the first cylindrical portion". However, in fact, both these portions of Figure 2 have the same diameter. The dimension 2 labeled on Figure 2 by the Examiner is the height of the cross section of the toothed portion of the steering rack, not the diameter of the toothed portion. Only something circular can have a diameter and in this case the diameter of the toothed portion of Figure 2 is the width of the cross section (labeled with reference numerals 14 and 16), and this diameter is the same as the other portions of the steering rack that the Examiner has labeled 1 and 3.

Dependent Claim 20

The Applicants disagree that Figure 2 of Daido Steel Co Ltd discloses the features of claim 20 for the same reasons as it does not disclose the features of claim 19, as discussed above.

All pending claims are now in condition for allowance.

Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102(b) and 103(a) are respectfully requested.

CONCLUSION

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. It is believed that a full and complete response has been made to the outstanding Office Action, and that the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, he is invited to telephone Carl T. Thomsen (Reg. No. 50,786) at (703) 208-4030 (direct line).

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17, particularly extension of time fees.

Dated: June 13, 2008

Respectfully submitted,

By _____
James M. Slattery
Registration No.: 28,380
BIRCH, STEWART, KOLASCH & BIRCH, LLP
8110 Gatehouse Road
Suite 100 East
P.O. Box 747
Falls Church, Virginia 22040-0747
(703) 205-8000
Attorney for Applicant

Attachment: Revised Abstract of the Disclosure

JMS/CTT/rgf